QUESTION

Let the initial premium for an unhedged European option be c, the strike price be K and the asset price $S(T)$. Sketch the actual payoff diagram as a function of S, including the initial premium for:

(a) the holder of a call option,

(b) the issuer of a call option,

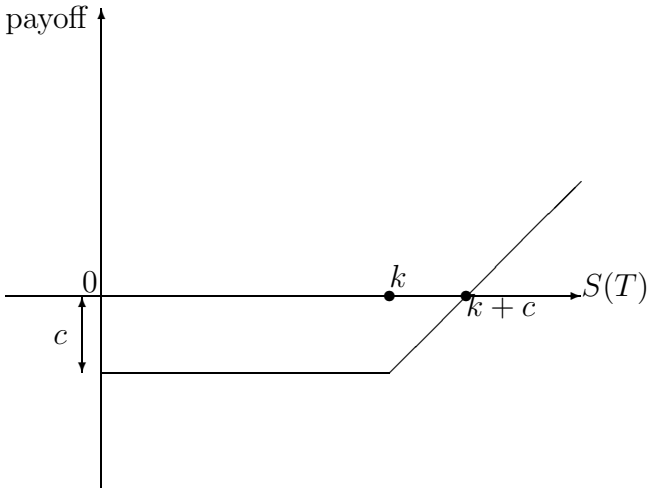
(c) the holder of a put option,

(d) the issuer of a put option.

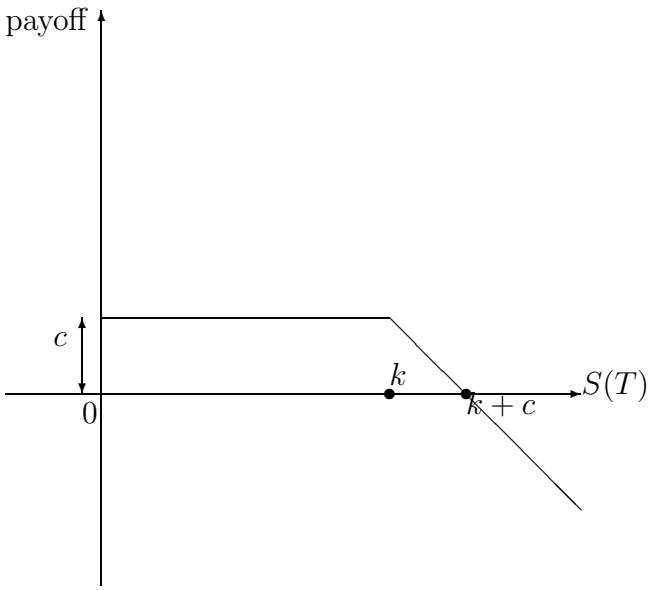
In each case identify the actual break even point relative to K.

ANSWER

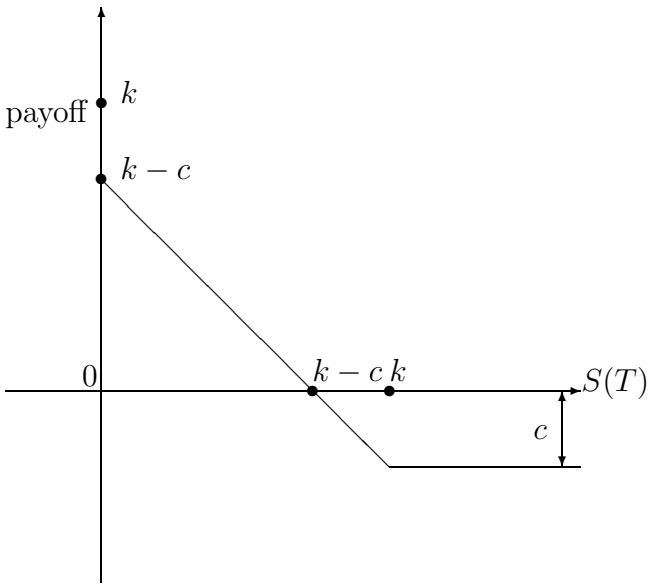
(a) Exercise price is still k. Euro-call holder premium shifts payoff down by premium c, so actual breakeven is $k + c$ for holder.



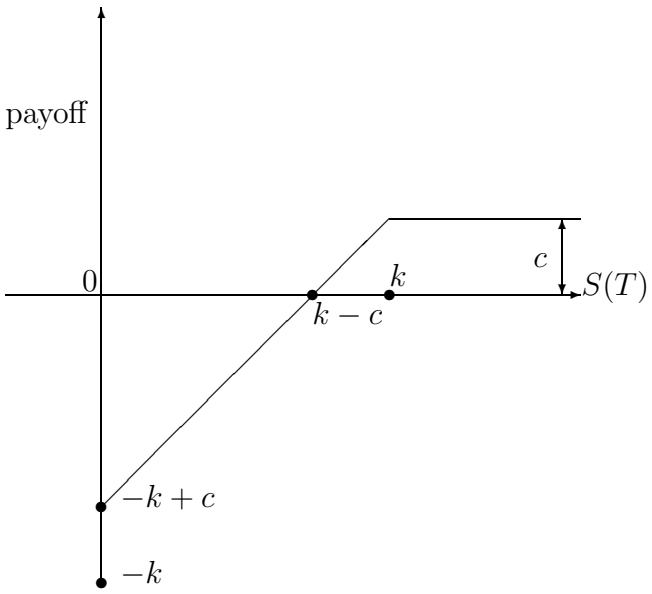
(b) Euro-call issuer premium shifts payoff up by premium c. Note that price at which holder will exercise still agrees for both parties.



(c) Euro-put holder premium shifts payoff down by amount c so actual breakeven is $k - c$ for holder.



(d) Euro-put issuer premium shifts payoff up by amount c. Exercise price still the same for both parties.


payoff
0
k
c
$S(T)$
$k-c$
$-k+c$
$-k$